12/14/2005

I-80 with IL 26
Diamond Interchange

Comments:

1. Exit ramp terminals; the 660' piece adjacent to the mainline is in accordance with the BDE. The 140' tangent section is missing and the R_1=698' instead of the required 760'.
2. Entrance ramp terminals; the 950' piece adjacent to the mainline is in accordance with the BDE. The required 200' tangent section is only 37.95' long. Existing width of the ramp at the gore area is only 14'. The R_1= 708' instead of the required 760'.
3. The profile of the SW ramp shows a SAG curve with a length of 300', min. length should be 396'. This ramp was widened to two lanes at IL 26 in 2003, but it doesn't appear the profile was addressed.
4. The ramp terminals with IL 26 are compatible with a WB-65 design vehicle.
5. IL 26 was widened in 2003 to accommodate 4 lanes across the I-80 bridge, this widening ends abruptly at the north ramp terminals.

Illinois Department of Transportation

DESIGN CRITERIA CHECKLIST

1. Application

The designer can use the Level One and Level Two Design Criteria Checklists to summarize compliance with design criteria and assist in the documentation of the adherence of the proposed project design to the design criteria. These checklists become a part of the permanent project file.

2. Level One Design Exceptions

A Level One design exception involves one of the controlling design criteria. Check the appropriate boxes on the "Level One Design Criteria Checklist" (p. 3). The determination of whether or not the proposed project design meets the IDOT controlling design criteria is dependent upon the project scope of work. If, for example, a 3R non-freeway project is under design, Chapter 49 will apply. For any Level One element which does not meet IDOT design criteria, the designer should prepare a statement for use at monthly coordination meetings which:

- identifies the design element,
- identifies IDOT design criteria,
- discusses the proposed design, and
- provides justification for the design exception.

The written summary of the discussion at the coordination meeting will document the justification for a design exception. Include the minutes of the meeting describing the project in the Phase I engineering report.

3. Level Two Design Exceptions

A Level Two design exception does not involve one of the controlling design criteria. Check the appropriate boxes on pp. 4-10 of the "Design Criteria Checklist." The determination of whether or not the proposed project design meets IDOT design criteria is dependent upon the project scope of work. If, for example, a 3R non-freeway project is under design, Chapter 49 will apply. For any Level Two element which does not meet IDOT design criteria, the designer should prepare a statement similar to that for a Level One exception.

It should be noted that Level Two design exceptions may not require as much justification to receive concurrence of the exception. The written summary of the discussion at the coordination meeting will document the justification for a design exception.

4. Project Identification

Federal Project No.: _____
Marked Route No.: I-80
Functional Classification: _____
Highway Type: _____
Project Location: I-80 Interchange with IL 26

County/City: Bureau Co.
Project Length: _____

5. **Project Scope of Work**

a. Is project located on the NHS? ☐ Yes ☐ No

b. Check the appropriate box. See Section 31-6 for definitions.

☐ New construction
☐ *Reconstruction
☐ 3R (non-freeway)
☐ *3R (freeway)

c. Provide a brief project description:

_____

_____

_____

_____

_____

**Note: May include "Allowed to Remain in Place" criteria.*

6. **Evaluating Exceptions**

When evaluating exceptions to design criteria, the primary considerations are:

- safety,
- capacity,
- compatibility with adjacent sections,
- time to construction of ultimate improvement, and
- construction costs.

7. **District Coordination Meetings**

Has project been discussed at district coordination meetings? ☐ Yes ☐ No

Date: _____

Date: December 9, 2005

Level One Design Criteria Checklist

Route: I-80 Section: _____ County: Bureau

Existing

Design Criteria for Mainline Only (Provide numerical value for project, where indicated.)	Does the ~~proposed~~ design meet IDOT criteria? Yes	No*	N/A
1. Design Speed: _____ mph (km/h)			
~~2. Lane Widths: 12' feet (meters)~~	✓		
3. Through Travel Lane Cross-Slopes in Percent (%): Lane 1 _____ Lane 2 _____ Lane 3 _____			
4. Shoulder Widths: _____ feet (meters) (inside) 12' (10' surfaced) feet (meters) (outside)			
5. Horizontal Curvature (Minimum Radius for selected design speed) ____ feet (meters)			✓
6. Superelevation Rates (e_{max} = _____ %)			✓
7. Stopping Sight Distance at Crest Vertical Curves (Level SSD for Passenger Cars) Thru Inter.	✓		
8. Stopping Sight Distance at Sag Vertical Curves (Level SSD for Passenger Cars) "	✓		
9. Stopping Sight Distance on Inside of Horizontal Curves (Level SSD for Passenger Cars)			✓
10. Clear Roadway Bridge Widths: _____ feet (meters)			
11. Structural Capacity of Bridges: _____			
12. Vertical Clearances: _____			
13. Maximum Grades: _____	✓		
14. Accessibility Criteria for Disabled Persons			

* Justification for any design exceptions must be discussed at monthly coordination meetings held in each district and must be documented in the Phase I report.

Note: Numbers 1, 2, 3, and 4 apply throughout the project. The remaining criteria (e.g., superelevation rates) apply to specific sites within the project limits.

Date: December 9, 2005

Level Two Design Criteria Checklist

Route: _____ Section: _____ County: _____

Design Criteria		Does the ~~proposed~~ Existing design meet IDOT criteria?		
		Yes	No*	N/A
1. Basic Design Controls				
~~a. Level of Service (mainline)~~				
b. SSD application at horizontal curves downgrade adjusted SSD used)	Horz.			
c. SSD application for vertical curves (downgrade adjusted SSD used)	Vert.			
d. Truck SSD (level) (at specific sites)				
2. Horizontal Alignment (Mainline)				
a. Traveled way widening				✓
b. Superelevation transition lengths				✓
c. Superelevation distribution between tangent and curve				✓
d. "Breakover" of outside shoulder on superelevated curves				✓
e. Relative longitudinal slope of shoulder to edge of traveled way on high side of S.E. curve adjacent to bridge with S.E.				✓
f. Superelevation development at reverse curves				✓
g. Is superelevation transition length located off of bridges and bridge approach pavements?				✓

*See Section 31-8 of *BDE Manual*

EXISTING

Design Criteria	Does the ~~proposed~~ design meet IDOT criteria?		
	Yes	No*	N/A
3. Vertical Alignment (Mainline)			
a. Minimum grades considering drainage	✓		
b. Critical length of grade	✓		
c. Warrants for truck-climbing lanes		✓	
d. Design criteria for truck-climbing lanes (e.g., lane width and shoulder width)			✓
e. Minimum length of vertical curves for selected design speed	✓		
f. Maximum length of vertical curves (drainage of curbed facilities and bridges)	✓		
4. Cross Section Elements (Mainline)			
a. Design of parking lanes: • Cross-slope ____% • Width _____feet (meters)			✓
b. Design of sidewalks: • Cross-slope _____% • Width _____feet (meters) • Longitudinal slopes _____%			✓
c. Type of curb and gutter used on median:			✓
d. Drainage of raised curb medians: • Direction of flow of median surface or pavement _____ • Direction of cross-slope on gutter _____%			✓
e. Type of curb and gutter used along outside edges of pavement _____			✓
f. TWLTL width: • Flush type _____feet (meters) • Traversable type ___feet (meters)			✓

*See Section 31-8 of *BDE Manual*

EXISTING

Design Criteria	Does the ~~proposed~~ design meet IDOT criteria? Yes	No*	N/A
g. Median widths: • Urban _____ feet (meters) • Suburban _____ feet (meters) • Rural 64 feet (meters)			
h. Shoulder cross slopes _____ %			
i. Fill slopes: _____ (V:H)			
j. Outside roadway ditch: • Slopes _____ • Depth _____ • Widths _____ Median ditch: • Widths _____ • Slopes _____ • Depth _____			
k. Cross-section transitions into bridges/ underpasses			
l. Use of mountable curbs (V > 45 mph (70 km/h))			✓
m. Cross-section transition details (e.g., four-lane to two-lane)			✓
n. Design of frontage roads: • Des. speed _____ • Pvmt. width _____ • Shld. width _____ • Cross-slopes ____ • Super. rate _____ • Ditch slopes _____			✓
5. Roadside Safety			
a. Horizontal clearances: • Clear zones on tangent sections • Clear zones on outside of horizontal curves			
b. Barrier warrants			
c. Barrier length of need			
d. Deceleration criteria for impact attenuators			

*See Section 31-8 of *BDE Manual*

EXISTING

Design Criteria		Does the ~~proposed~~ design meet IDOT criteria?		
		Yes	No*	N/A
6. Intersections				
a. Accommodation of design vehicle (Identify Vehicle) _____				
b. ~~Level of service:~~ • Through Lanes _____ • Turn Lanes _____				
c. Skew angle				
d. Profiles				
e. Volume guidelines for turn-lanes: • Right-turns • Left turns				
f. Design of right-turn lanes Design of left-turn lanes				
g. Turn-lane tapers	Approach Taper			
	Departure Taper			
	Bay Taper			
h. Turning roadway widths				
i. Turn-lane lengths	Deceleration (Rural)			
	Storage (Urban)			
j. Intersection sight distance: List criteria and type: _____ _____				
k. Median opening length: _____				
l. Minimum corner island size: _____				
m. Does right-turn radius accommodate design vehicle without encroachment?				
n. Driveway widths				

*See Section 31-8 of *BDE Manual*

733+95.12
731+65.82
230.00'

Date: December 9, 2005

EXISTING

Design Criteria		Does the ~~proposed~~ design meet IDOT criteria?		
		Yes	No*	N/A
o. Type of traffic control: • Two-way stop • All-way stop • Traffic signals				↓
p. Is maximum grade exceeded on any approach?				↓
q. Max "e" for intersections on curve				↓
7. Interchanges				
a. Exit Terminal	Standard Type		✓	
	Design speed of first curve		✓	
	Are any exit terminals located on mainline horizontal curve?		✓	
b. Entrance Terminal	Standard Type			
	Length of tangent after the entering curve		✓	
	Design speed of entering curve		✓	
c. Design speed of ramp proper: 38 – 39 instead of 40 mph (km/h)			✓	
d. Design speed of crossroad: 55 ± mph (km/h)		✓		
e. Maximum ramp grades: • Exit ramp 3.10 % • Entrance ramp 1.47 %		✓		
f. Ramp pavement width 16'		✓		
g. Ramp shoulder widths: • Left 8' (4' paved) • Right 10' (8' paved)		✓		
h. Horizontal ramp curvature in conjunction with selected design speeds			✓	

*See Section 31-8 of *BDE Manual*

EXISTING

Design Criteria		Does the ~~proposed~~ design meet IDOT criteria? Yes	No*	N/A
i. Superelevation development on ramps	Superelevation Rate	✓		
	Transition Length		✓	
	Distribution Between Tangent & Curve		✓	
j. ~~Vertical curvature compliance with selected design~~ speed on ramp SW ramp has short SAG curve			✓	
k. Length of access control at crossroad				
l. Type of traffic control at crossroad: • Stop signs (•) Traffic signals (temporary signals @ North ramp terminals.) • Free flow		✓		
m. Is length of crest vertical curve used on crossroad ≥ that required by the selected design speed of crossroad?		✓		
n. Are crossroad approach grades through ramp/ crossroad intersections ≤ 2%?		✓		
o. Are ramp/crossroad intersections located on a tangent section of crossroad alignment? South ramp terminals located on curve			✓	
p. Is decision sight distance available in advance of exit gore?		✓		
q. Is clear recovery area available beyond gore nose?		✓		
r. Level of service: • Exit terminal _____ • Entrance terminal _____ • Ramp proper _____ • Weaving area _____ • Ramp/crossroad intersection _____				

*See Section 31-8 of *BDE Manual*

Design Criteria			Does the proposed design meet IDOT criteria? Yes	No*	N/A
s. Freeway lane drops	Location	Upgrade			
		Downgrade			
		Inside Lane			
		Outside Lane			
		At Exit Terminal			
		Beyond Exit Terminal			
	Taper Length				

Prepared By: ME
Designer (IDOT or Consultant)

*See Section 31-8 of *BDE Manual*